

**CIRCUIT FOR FACILITATING SIMULTANEOUS  
MULTI-DIRECTIONAL TRANSMISSION OF MULTIPLE SIGNALS  
BETWEEN MULTIPLE CIRCUITS USING A SINGLE TRANSMISSION LINE**

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**ABSTRACT OF THE DISCLOSURE**

An encoding element (109, 111, 113) and a decoding arrangement (110, 112, 114) is included with each separate circuit (104, 105, 106) in a system (100) of circuits which must communicate digital signals with each other. The encoding devices (109, 111, 113) included with the separate circuits (104, 105, 106) cooperate to produce an encoded signal on a common transmission line or network (108) which interconnects the various circuits. The decoding arrangement (110, 112, 114) associated with each respective circuit receives the encoded signal appearing on the transmission line and decodes the encoded signal to reproduce or recreate the digital data signals transmitted from the other circuits in the system.

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